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Patentanmeldung Nr. Patent application No. Demande de brevet n°

02075276.2

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Cabinet for a display device.

EPO - DG 1

23. 01. 2002

(42)

The invention relates to a cabinet for a display device having a display screen, the cabinet comprising:

- a rear part;
- a front part mounted to the rear part, having a window for the display screen, at least one of the rear part and the front part being able to hold the display device (2); and
- fastening means for fastening the front part to the rear part, the fastening means comprising pairs of cooperating members of the front part and the rear part, at least one pair having a resilient member, the cooperating members of the at least one pair having a shape and a position enabling mounting manually the front part to the rear part and enabling disengagement of the at least one pair of members by a movement of the resilient member to make the front part and the rear part separable.

The invention also relates to a display apparatus comprising such a cabinet and a display device having a display screen, the device being mounted in the cabinet and its display screen being visible through the window of the front part.

A cabinet for a display device is known from EP 0 966 159 A1. The rear part of the known cabinet is mounted in a recess of a wall. The front part is fastened to the rear part by means of snap-ins which are positioned internally in the cabinet. The front part can be separated from the rear part by bending the resilient members of the snap-ins by inserting a screwdriver or the like into holes near the snap-ins. The front part may be fastened by means of screws instead of the snap-ins.

It is a drawback of such fastening means that tools are needed to separate the front part from the rear part. Often the tools are unavailable and/ or the snap-ins cannot be reached by the tools when the cabinet in a normal operational position. When inserting the tool into a hole near a resilient member it is difficult to see the exact location where to apply force with the tool on the resilient member. If applying too much force on the wrong location a crack can be created. While using tools for disengaging the snap-ins there is a risk of cracks in the snap-ins or in the front or rear part. Moreover the tools could create scratches.

It is an object of the invention to provide a cabinet for a display device of the kind described in the opening paragraph which has fastening means of a construction allowing an easy separation of the front part and the rear part.

5 The invention is defined by the independent claims. The dependent claims define advantageous embodiments.

Advantages of such fastening means are that the front part and the rear part can easily be separated or mounted when a repair is needed without having to use tools. When it is desired that a user can change the front part without technical support, for example
10 when a different shape or color is wanted, it is advisable if the rear part is holding the display device.

Damages are avoided when using resilient members positioned at the exterior of the cabinet and which can be disengaged manually.

For production the advantages are that operation time is reduced, especially if
15 repairs or checks are needed which require removal of the front part.

The rear part and the front part could each comprise only one part but may alternatively be constructed using several parts.

It is advantageous if the resilient member of the at least one pair of members is in a location where it is substantially invisible when the cabinet is in a normal operational
20 position. In that case the member does not deteriorate the appearance of the cabinet. When the cabinet is resting via a base on a support surface the resilient member can easily be accessed and moved to disengage the resilient member from its cooperating member thereby separating the front part from the rear part.

An easy way to ensure that the resilient member is substantially invisible, is
25 realized if the front part has a side wall directed substantially towards a support on which the cabinet rests in a normal operational position; and the resilient member of the at least one pair of members is positioned at the side wall of the front part; and extends from the front part to the rear part.

When the cabinet is resting on its base, it is very easy to use fingers to move
30 the resilient member in the direction of the support and hold with other fingers the front part in order to separate the front part from the rear part after having disengaged the resilient member from its cooperating member. An alternative way to make the resilient member substantially invisible is to position the resilient member at another side wall of the front part

and to design the shape of the member and surrounding parts such that the appearance of the product remains attractive.

If the rear part has a first recess in an outer surface through which the resilient member is accessible, it can be avoided that the resilient member extends beyond the rear part to make the member manually accessible. Such a construction would increase the risk of accidentally moving the resilient member during normal use, handling or transportation, resulting in an undesired disengagement of the resilient member from its cooperating member. Moreover such a construction would deteriorate the appearance of the cabinet. Finally such a construction would require more material, so would be more expensive.

It is a further advantage if the rear part has a second recess into which the resilient member is sunk. Such a construction will even further reduce the risk of accidentally moving the resilient member and improve the appearance. Moreover the second recess may have a tapered shape to guide the resilient member into the correct position with respect to its cooperating member when moving the front part towards the rear part during mounting.

It is also advantageous if at least two resilient members are present, spaced apart at the side wall of the front part. In this case gaps between the front part and the rear part can be avoided or minimized in case the parts have a certain degree of flexibility, moreover a rigid fixation can be achieved to meet handling and transportation specifications. When applying two members, it is still easy to disengage manually the members simultaneously by using both hands, followed by the separation of the front part and rear part.

It is furthermore also advantageous if the resilient member of the at least one pair of members has a third recess, and that the cooperating member has a protrusion which is snapped into the third recess. This solution is easier to implement when the at least one pair of members are molded together with the front or rear part. However also a construction is possible wherein the resilient part has a protrusion and the cooperating member has a recess.

It is also advantageous if the cooperating members of the at least one pair of members are snap-ins. In this case when the mounting the front part to the rear part the cooperating members will snap into each other when the front part and rear part are brought in the correct position for assembly.

Finally, it is also advantageous if the display device is fixed by means of other snap-ins. In case the display device is held by other snap-ins in the rear part, it is advisable that the front part has other protrusions which lock the other snap-ins when the front part is mounted to the rear part. Likewise if the display is held by other snap-ins in the front part, it

is advisable that the rear part has the other protrusions locking the other snap-ins. In this way it can be secured that the display device remains correctly positioned in the cabinet under all specified transportation conditions.

5 The display device can be a Liquid Crystal type of display, a cathode ray tube or any other display device used in applications such as monitors and television related applications.

These and other aspects of the cabinet and the apparatus of the invention will be further elucidated and described with reference to the drawings, in which:

10 Fig. 1 is a schematically perspective view illustrating a first embodiment of the display apparatus comprising a display device and the display cabinet, in an opened position;

Fig. 2 is a perspective view illustrating another embodiment of the display cabinet seen according to II in Fig. 1;

Fig. 3 is the embodiment of Fig. 2 seen according to III in Fig. 1.

15

The display apparatus of Fig. 1 has a display device 2 which has a display screen 3 mounted in a display cabinet 1. The cabinet 1 comprises a rear part 4 for holding the display device 2 and a front part 5 mounted to the rear part 4. The front part 5 has a window 6 for the display screen 3. The cabinet also comprises for fastening elements for fastening the front part 5 to the rear part 4. The fastening elements comprise pairs 10a, 10b; 12a, 12b of cooperating members of the front part 5 and the rear part 4. At least one pair has a resilient member 10a; 10b. The cooperating members 10a, 10b of the at least one pair 10a, 10b have a shape and a position enabling mounting manually the front part 5 to the rear part 4 and enabling disengagement of the at least one pair of members 10a, 10b by a movement of the resilient member 10a; 10b. After disengagement the front part 5 and the rear part 4 are separable.

25

The resilient member 10a; 10b of the at least one pair is positioned at the outside of the cabinet 1. It is manually accessible, and has a shape and a position enabling it to be disengaged from its cooperating member 10b; 10a by a manual displacement.

30

The resilient member 10a; 10b of the at least one pair of members 10a, 10b as shown in Fig. 1 is in a location where it is substantially invisible when the cabinet 1 is in a normal operational position. The front part 5 has a side wall 20 directed substantially towards a support S on which the cabinet 1 rests in a normal operational position. In Fig. 1 member 10a is the resilient member 10a of the at least one pair of members 10a, 10b. Likewise

members 11a, 11b are another pair of cooperating members having another resilient member 11a. Member 12a is positioned at another side wall of the front part 5 opposing the side wall 20. By disengaging both 10a and 11a from their respective cooperating members the front part 5 can be rotated around an axis parallel to the support surface and through the member 12b. After sufficient rotation the member 12a is disengaged from its cooperating member 12b. If the members 12a, 12b are fixed the front part 5 is mounted to the rear part 4 by rotating the front part 5 in reverse direction as described above. If one of the members 12a, 12b is resilient the front part 5 can be mounted to the rear part 4 by a linear movement of the front part towards the rear part. In Fig. 1 member 12b is resilient. Generally next to the pair of cooperating members 12a, 12b more pairs of cooperating members are present to ensure adequate fixation of the front part 5 to the rear part 4. These pairs of cooperating members could also be present at other side walls than mentioned before. In that case the cooperating pairs need at these other side walls need to have a resilient member to enable mounting the front part 5 to the rear part 4. Moreover the front part itself needs to be sufficiently resilient to bend in order to be able to disengage the cooperating members at the other side walls.

The resilient member 10a is positioned at the side wall 20 of the front part 5. It extends from the front part 5 to the rear part 4.

In Figs. 2 and 3 parts corresponding to parts in Fig. 1 have the same reference numerals.

The cabinet 1 of Fig. 2 has a first recess 22 in an outer surface through which the resilient member 10a is accessible.

In cabinet 1 of Fig. 3, members 10a and 10b are the resilient members of the at least one pair of members 10a, 10b; 11a, 11b. The cabinet 1 has a second recess 23 into which the resilient member 10a is sunk. The resilient members 10a, 11a are spaced apart at the side wall 20 of the front part 5.

The resilient member 10a of the at least one pair of members 10a, 10b has a third recess 25 as shown in Fig. 2. The cooperating member 10b has a protrusion 26, which is snapped into the third recess 25. In an alternative embodiment the member 10b has the third recess, while the member 10a has the protrusion which is snapped into the third recess. The cooperating members 10a, 10b of the at least one pair of members 10a, 10b can be snap-ins. In this case at least one of the cooperating members have a tapering shape allowing easy sliding one over the other during mounting of the front part to the rear part.

At least one other snap-in 30 is holding the display device 2.

Another protrusion 31 is locking the other snap-in 30 when the front part 5 is mounted to the rear part 4.

It should be noted that the above-mentioned embodiments illustrate rather than
5 limit the invention, and that those skilled in the art will be able to design many alternative
embodiments without departing from the scope of the appended claims. In the claims, any
reference signs placed between parentheses shall not be construed as limiting the claim. The
word “comprising” does not exclude the presence of elements or steps other than those listed
in a claim. The word “a” or “an” preceding an element does not exclude the presence of a
10 plurality of such elements. The features of the cabinet according to the invention can also be
present in other combinations than appear from the claims.

CLAIMS:

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(42)

1. A cabinet (1) for a display device (2) having a display screen (3), the cabinet (1) comprising:

- a rear part (4);
- a front part (5) mounted to the rear part (4), having a window (6) for the display screen (3), at least one of the rear part (4) and the front part (5) being able to hold the display device (2); and
- fastening means for fastening the front part (5) to the rear part (4), the fastening means comprising pairs (10a, 10b; 12a, 12b) of cooperating members of the front part (5) and the rear part (4), at least one pair (10a, 10b) having a resilient member (10a; 10b), the cooperating members (10a, 10b) of the at least one pair (10a, 10b) having a shape and a position enabling mounting manually the front part (5) to the rear part (4) and enabling disengagement of the at least one pair of members (10a, 10b) by a movement of the resilient member (10a; 10b) to make the front part (5) and the rear part (4) separable, characterized in that the resilient member (10a; 10b) of the at least one pair
- is positioned at the outside of the cabinet (1),
- is manually accessible, and
- has a shape and a position enabling it to be disengaged from its cooperating member (10b; 10a) by a manual displacement.

2. A cabinet (1) as claimed in claim 1, characterized in that the resilient member (10a; 10b) of the at least one pair of members (10a, 10b) is in a location where it is substantially invisible when the cabinet (1) is in a normal operational position.

3. A cabinet (1) as claimed in claim 2, characterized in that

- the front part (5) has a side wall (20) directed substantially towards a support (S) on which the cabinet (1) rests in the normal operational position; and
- the resilient member (10a) of the at least one pair of members (10a, 10b)
 - is positioned at the side wall (20) of the front part (5); and
 - extends from the front part (5) to the rear part (4).

4. A cabinet (1) as claimed in claim 3, characterized in that the rear part (4) has a first recess (22) in an outer surface through which the resilient member (10a) is accessible.

5

5. A cabinet (1) as claimed in claim 3, characterized in that the rear part (4) has a second recess (23) into which the resilient member (10a) is sunk.

6. A cabinet (1) as claimed in claim 3, characterized in that at least two resilient members (10a, 11a) are present, spaced apart at the side wall (20) of the front part (5).

7. A cabinet (1) as claimed in claim 1, characterized in that the resilient member (10a; 10b) of the at least one pair of members (10a, 10b) has a third recess (25), and that the cooperating member (10b; 10a) has a protrusion (26), which is snapped into the third recess (25).

15

8. A cabinet (1) as claimed in claim 1, characterized that the cooperating members (10a, 10b) of the at least one pair of members (10a, 10b) are snap-ins.

9. A cabinet (1) as claimed in claim 1, characterized in that one of the rear part (4) and the front part (5) comprises at least one other snap-in (30) holding the display device (2); and that the other one of the rear part (4) and the front part (5) comprises at least one other protrusion (31) for locking the at least one other snap-in (30).

20

10. A display apparatus comprising a cabinet (1) as claimed in claim 1 and a display device (2) having a display screen (3), the display device (2) being mounted in the cabinet (1) and its display screen (3) being visible through the window (6) of the front part (5).

25

ABSTRACT:

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(42)

The cabinet (1) for a display device (2) comprises a rear part (4) and a front part (5) mounted to the rear part (4). The display device (2) is mounted in the cabinet (1). The cabinet also comprises fastening elements for fastening the front part (5) to the rear part (4), the fastening elements comprising pairs (10a, 10b; 12a, 12b) of cooperating members of the front part (5) and the rear part (4). The pairs of members enable mounting manually the front part (5) to the rear part (4). At least one resilient member (10a; 10b) is manually accessible, and has a shape and a position enabling it to be disengaged from its cooperating member (10b; 10a) by a manual displacement. After disengagement the front part (5) and the rear part (4) are separable. The display apparatus has the display device (2) in the cabinet (1).

10

Fig. 1

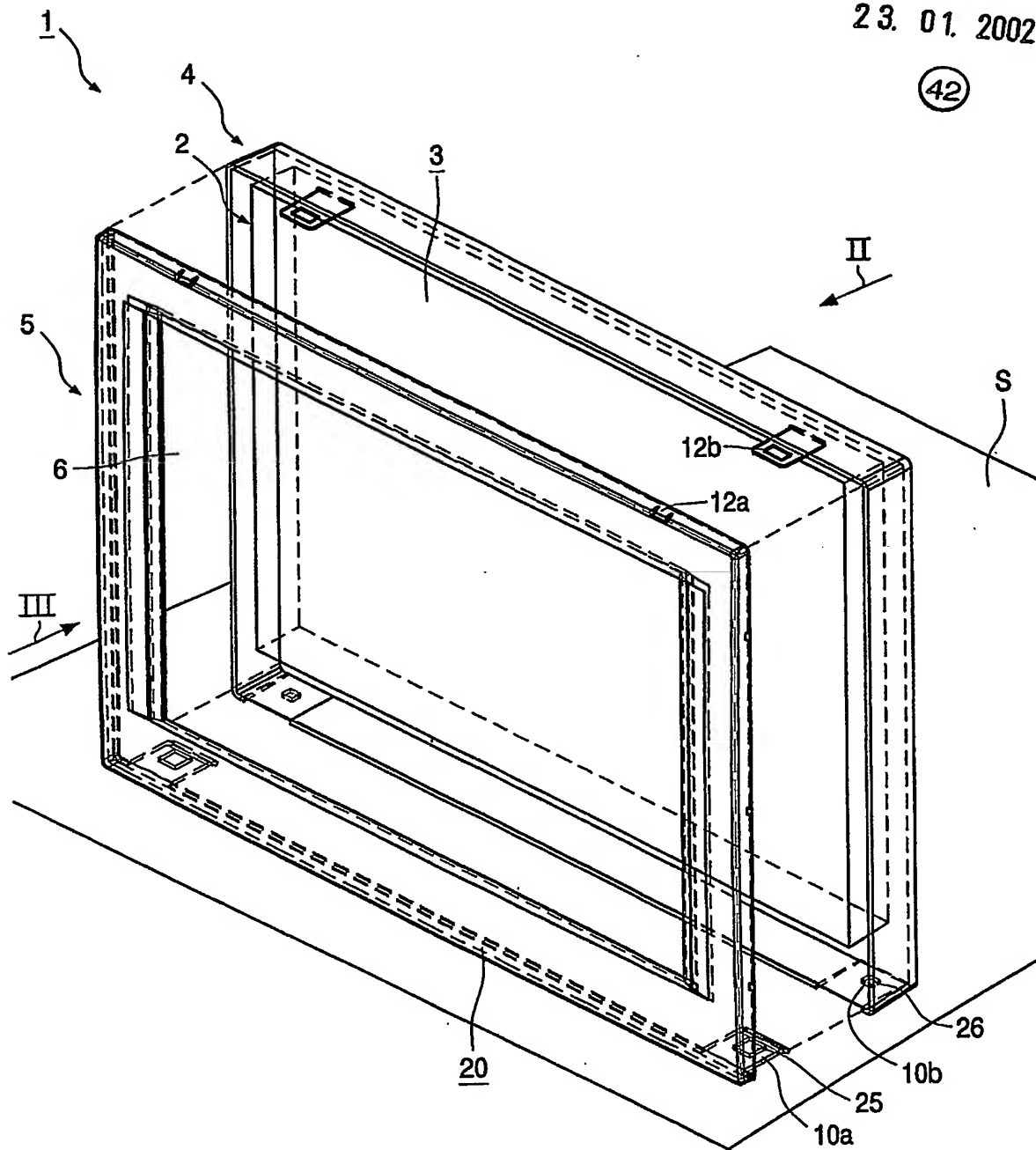


FIG. 1

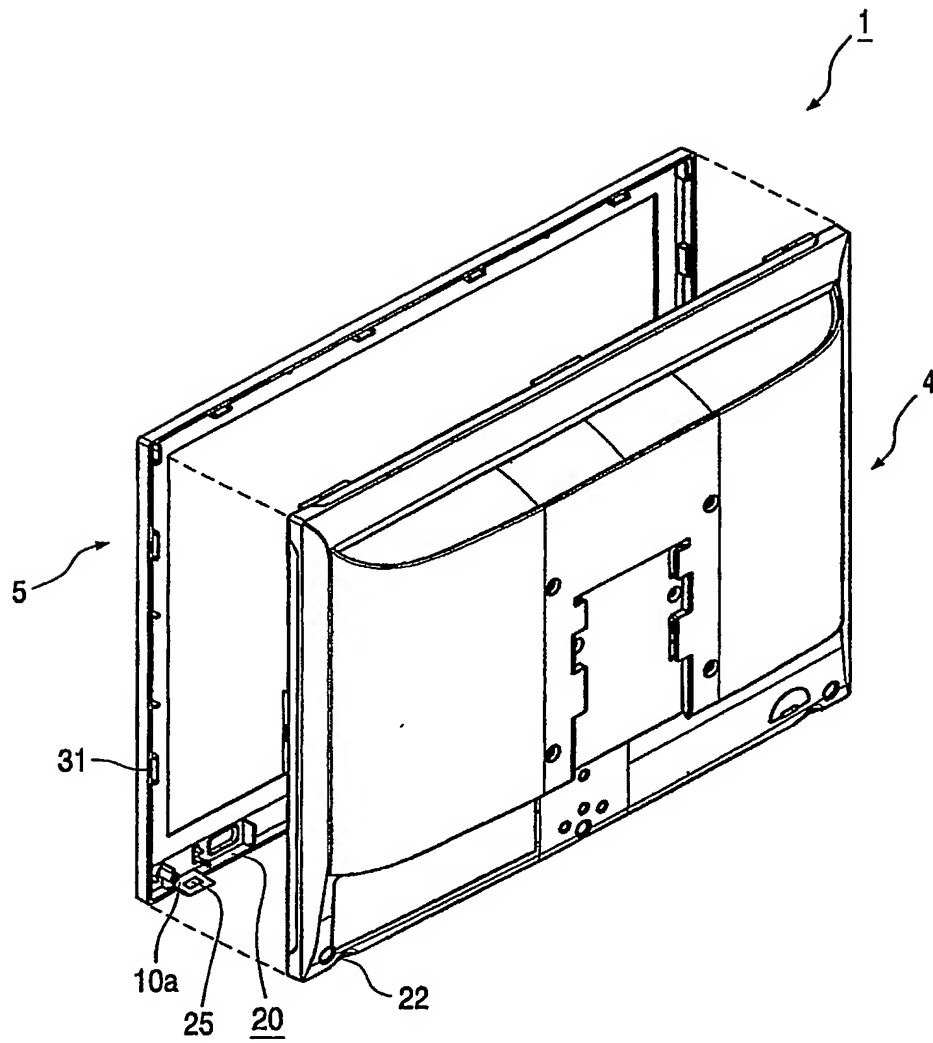


FIG. 2

3/3

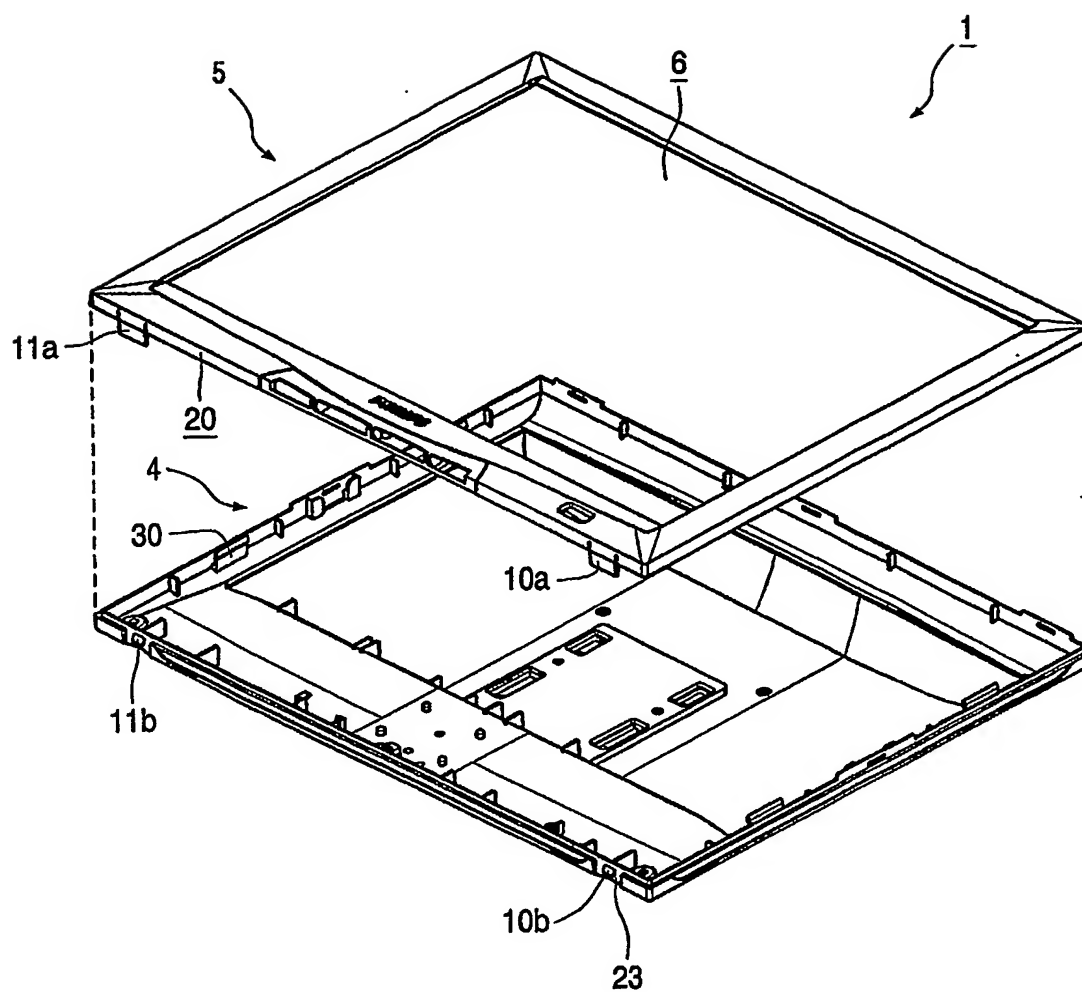


FIG. 3

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